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ABSTRACT

A project was conducted to study the interrelationships of teacher and/or student classroom behavior as measured by four different observation systems employed simultaneously to assess a given teaching-learning situation. Subjects were 71 student teachers each of whom was observed for 20 minutes during the latter half of his student teaching by a team of four trained and reliable observers, each using a different observation system. The four systems were 1) the Reciprocal Category System (RCS), a modification of the Flanders system of verbal interaction analysis; 2) the Florida Taxonomy of Cognitive Behavior (FTCB), an operationalized modification of Bloom's Taxonomy of Educational Objectives: Cognitive Domain; 3) the Teacher Practices Observation Record (TPOR) measuring teacher experimental and nonexperimental behavior; and 4) the Taxonomy of Imagery Provocation (TIP) to assess teacher behavior on a concrete to abstract imagery-related continuum. Data was treated by a principal components factor analysis program with varimax rotation; the rotated factor matrix was analyzed to identify clusters of classroom behavior that tend to group together on the basis of a common dimension or factor. Findings revealed 11 such factors. Several strong relationships were found within one or more of the four instruments as well as between pairs of instruments. (Findings are discussed. Instruments are included.) (JS)

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SIMULTANEOUS USE OF FOUR DIFFERENT OBSERVATIONAL SYSTEMS TO ASSESS STUDENT TEACHER CLASSROOM BEHAVIOR

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INTRODUCTION

The employment of observational systems* as a technique for securing data describing behavioral interaction in the classroom is neither a novel nor an unusual research practice. Beginning in the mid-forties with Withall's (9) work and continuing on up to the present, more sophisticated instruments such as the OsCAR (6), the Flanders system of interaction analysis (1), the Gallagher-Aschner system (5), and the Teacher Practices Observational Record (3) have been developed and used to produce sizeable amounts of descriptive and meaningful data. It is not surprising then that, to date, numerous studies ranging the entire, broad spectrum of classroom behavior have been reported--nearly all designed to incorporate valid and reliable instruments to collect "objective" data in which a great degree of confidence can be placed.

However, until just recently, in by far the majority of these cases, an individual study was designed to employ only a single observational system to assess a single dimension of classroom behavior. It is in this regard that the present study departs significantly from earlier studies of this sort: the present study was designed to consider the simultaneous interaction of four different behavioral dimensions in the same classroom setting.

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*An observational system is any technique designed for the purpose of identifying, examining, classifying, and quantifying specific variables of a classroom teaching-learning situation.

This more recent practice of considering more than a single dimension of classroom behavior at a time is termed "multidimensionality." Operationally, it provides for the employment of several (more than one) different observers to observe the same classroom situation simultaneously, each observer using a different observational system.

Chronologically, the present study is rooted in and has grown out of an earlier study that featured "multidimensionality" reported by Wood (1969) (10). One hundred seventeen inservice teacher subjects were studied in the Wood study, each subject being observed by three different observers simultaneously, each observer using a different observational system. Observational data obtained by the three different instruments were processed and treated by a principal components factor analysis program with varimax rotation. Subsequently, clusters of classroom process measures were identified which tend to associate together on the basis of a common factor or dimension. In general, the basic rationale and design employed in the Wood study served as the model for designing the present study.

PURPOSE OF THE STUDY

The purpose of the present study was to study the interrelationships of teacher and/or student classroom behaviors as measured by four different observational systems employed simul-

taneously to assess a given teaching-learning situation. Because the study was purposely conceived to be a pilot study and, therefore exploratory in nature, the above purpose was set forth as a simple hypothesis, stated in the null (i.e., there will be no interrelationships).

DESIGN

Seventy-one student teachers--twenty-two elementary and forty-nine secondary--who were enrolled either as juniors or seniors in the regular student teaching block at West Virginia University, Spring, 1969 were studied as subjects. Prior to student teaching, each subject had been trained to use both the Reciprocal Category System (7) and the Florida Taxonomy of Cognitive Behavior (4) as techniques for analyzing his teaching behavior. In addition, each subject had taken 1) a general methods course (including micro-teaching experiences), 2) a special methods course (according to his specialty field), and 3) an introductory course in educational psychology.

Subjects were assigned randomly for student teaching assignments according to subject areas. Subject area instructors supervised subjects throughout the sutdent teaching experience.

During the latter half of his student teaching experience, each subject was observed for a period of approximately 20 minutes by a team of four trained and reliable observers, each using a

different observational system. Data obtained from these observations represented the measures that were processed for final study.

INSTRUMENTS

The four observational systems used to secure data in the present study are the Reciprocal Category System (RCS) (7), the Florida Taxonomy of Cognitive Behavior (FTCB) (4), the Teacher Practices Observation Record (TPOR) (3), and the Taxonomy of Imagery Provocation (TIP) (8).

The RCS, developed by Ober (7), is designed to assess the verbal dimension of the classroom. A modification of the Flanders system of interaction analysis, the system includes nine common verbal categories, each of which can be assigned to either teacher or student talk in addition to a single category reserved for silence or confusion (re: Figure 1, Appendix).

The FTCB, developed by Brown, Ober and Soar (4) is an operationalized modification of Bloom's Taxonomy of Educational Objectives: Cognitive Domain (2). It includes a total of 55 single items which are divided into seven subdimensions: Knowledge, Translation, Interpretation, Application, Analysis, Synthesis, and Evaluation. Provisions are made for measuring both teacher and student behavior. Scoring procedures allow subscores to be calculated for each of the seven subdimensions in addition

to a total composite score for both teacher and student (re: Figure 2, Appendix).

The TPOR, developed by Brown (3), consists of a total of 62 individual items. Predicated on a general philosophy as purported by John Dewey, items are arranged in dyadic order so that the first item of a pair is a nonexperimental teacher behavior and the second an experimental behavior (re: Figure 3, Appendix).

The TIP, developed by Solomon (8) is designed to assess teacher behavior on a concrete to abstract imagery related continuum. This continuum includes a lower concrete level, three imagery related middle levels, and a higher abstract level. Distinct patterns of imagery related cognitive teacher behavior are identified and the appropriateness with which teachers deal with students at differing levels of cognitive maturity can be subsequently evaluated by means of this instrument (re: Figure 4, Appendix).

DATA TREATMENT

Raw data yielded by the four observational systems, recorded on data collection sheets in the classroom, were scored, processed, etc. and, in turn, were punched on IBM cards in proper format to be treated by a principal components factor analysis program with varimax rotation. The rotated factor matrix was subsequently

analyzed in order to identify clusters of classroom behaviors that tend to group together on the basis of a common dimension or factor.

FINDINGS

Findings of the study are reported here in tabular form showing the variables that were identified as being related and, therefore, clustered to form the 11 factors. Following each factor table is an interpretation of that factor and/or a brief discussion of its significance.

Factor 1--IMAGERY

VARIABLE NUMBER		LOADING
52	Total Imagery	.97
46	Visual Concrete	.81
49	Non Visual Representation	.80
48	Visual Presentation	.77
50	Visual Abstract	.77
51	Non Visual Abstract	.68
47	Non Visual Concrete	.62
31	Student Cognition 4. Application	.51
21	Teacher Cognition 2. Translation	.36
23	Teacher Cognition 4. Application	.36
41	TPOR Experimentalism 6. Differentiation	.35
24	Teacher Cognition 5. Analysis	.34
45	Abstract without Imagery	-.81

Factor 1 rather clearly represents imagery. The highest loading total use of imagery (.97), identifies the positive direction of the factor while Abstract teaching behavior Without Imagery (-.81) defines the negative pole.

Within the dimension of imagery are relationships involving the concrete-abstract continuum of (mental) cognitive operation and the nature of the imagery (visual, etc.). The higher the loading of a variable the more closely it is associated with the total use of imagery. Thus, concrete cognitive operation is most closely associated with imagery, followed by representation, and then abstract. As teachers moved away from concrete cognitive behavior toward abstract behavior, their accompanying imagery decreased. The one exception to this finding is the non-visual concrete viriable which has the lowest loading of any of the variables with imagery.

Some cross dimensional relationships were found although the loadings were not extremely high. Only one level of student cognition (4. Application) was related to imagery; yet three levels of teacher cognition (2. Translation, 4. Application, and 5. Analysis) load on the cactor. The experimental dimension is represented in Factor 1, (Differentiation, .35).

FACTOR 2--WARM CLASSROOM CLIMATE

VARIABLE NUMBER		LOADING
11	Student Warm Climate	.98
12	Student Acceptance	.98
17	Student Directions	.95
14	Student Questions	.86
1	Teacher Warms Climate	.80
18	Student Correction	.74
13	Student Amplify - Clarify	.57

Factor 2 shows a broad range of student verbal behavior coupled with one category of teacher verbal behavior, Warming the climate. Students are found to Warm the climate, Accept the behavior of others, extend and clarify ideas; and, in the same context, are found to ask questions, give directions, and correct responses of fellow students. Apparently, a warm climate increases the student's range of verbal alternatives; a range which is traditionally restricted to more or less narrow responses and, sometimes, questions.

FACTOR 3--STUDENT COGNITIVE

VARIABLE NUMBER		LOADING
33	Student Cognition 6. Synthesis	.82
27	Teacher Cognition Median	.74
35	Student Cognition Median	.73
24	Teacher Cognition 5. Analysis	.72
32	Student Cognition 5. Analysis	.68
34	Student Cognition 6. Evaluation	.67
25	Teacher Cognition 6. Synthesis	.42
31	Student Cognition 4. Application	.30
38	Experimental Development of Ideas	.30

Factor 3 is composed of measures involving high level student and teacher cognition. Eight of the nine measures on this factor show relationships between student and teacher cognitive behavior. The remaining measure, Development of Ideas, comes from the experimental dimension of classroom behavior.

In interpreting Factor 3, the most generalized statement which can be made is that high level student cognition is closely related to high level teacher cognition where ideas are developed within an experimental framework. More specifically, the closest loadings between teacher and student cognition are the median scores. (teacher median, .74; student median,.73)

It is interesting to note that the four highest levels of cognition for students load on the factor while only two distinct levels of teacher cognition appear. Also, the variable with the highest loading is one measuring student cognition, suggesting that this factor represents a system of relationships in which student cognitive behavior is central.

FACTOR 4--COOL CLASSROOM CLIMATE

VARIABLE NUMBER		LOADING
19	Student Cool Climate	.90
3	Teacher Amplify - Clarify Ideas	.89
5	Teacher Answer Questions	.84
8	Teacher Correction	.79
7	Teacher Directions	.72
2	Teacher Acceptance	.69
13	Student Amplification	.62

This factor presents an unusual combination of measures from the RCS. Student climate cooling, (Category 19) although rarely observed in the classroom, has the highest loading (.90) and must be taken to represent the direction of the factor. Loading in the same direction are several diverse measures of teacher verbal behavior, some of which were not expected to show a relationship to student climate cooling. For example,

teacher Acceptance, variable #2, and teacher Correction, variable #8 are at opposite ends of the affective continuum and should not appear together in a climate cooled by students. Moreover, teacher Directions, variable #7, and Amplification, varible #3, load in opposite directions on a bipolar factor reported in a previous study. (10)

In order to find a plausible explanation for Factor 4, the RCS raw data were examined. Using student climate cooling as a tracer variable, it was learned that those subjects whose students scored high on climate cooling exhibited a consistent pattern of verbal behavior different from that of other subjects. The pattern found was an erratic one where teachers were abruptly swinging from one category to its counterpart (Correction followed immediately by Acceptance, etc.) Thus, it is suggested that the pattern of verbal behavior is central in this set of relationships.

FACTOR 5--STRUCTURING RESPONSE VS INITIATION

VARIABLE NUMBER		LOADING
15	Student Answer Questions	.86
4	Teacher Questions	.81
36	Experimentalism 1. Nature of Situation	.46
26	Teacher Cognition 7. Evaluation	.31
53	Grade Level	-.31
6	Teacher Initiation (Lecture)	-.32
16	Student Initiation	-.38

Factor 5, a bi-polar factor, shows two diverse types of rather conventional teacher-student classroom interaction. The positive pole is composed of teacher question-student answer measures with their attendant variables, experimental Nature of the Situation on the TPOR, and the highest level of teacher cognition, Evaluation. The negative pole of the factor shows relationships among Student Initiation, Teacher Initiation and grade level.

On this factor we find a question-answer teaching technique to be positively related to an experimental classroom situation, and the highest level of teacher cognition. The negative relationship between student-teacher initiation, and question-answer behavior suggests that these subjects did not use these two diverse techniques interchangably.

Adding further clarification on Factor 5 is the grade level variables which suggests that higher grade levels (secondary) are positively associated with Teacher Initiation (lecture) and student initiation but negatively related to Teacher Questions and Student Answers.

FACTOR 6--EXPERIMENTALISM

VARIABLE NUMBER		LOADING
43	EXPERIMENTALISM SCORE	.92
42	TPOR 7	.86
37	TPOR 2	.75
38	TPOR 3	.72
40	TPOR 5	.68
39	TPOR 4	.58
41	TPOR 6	.46
36	TPOR 1	.40

Factor 6 is composed exclusively of experimentalism measures. The higher the magnitude of loading for a TPOR category, the more closely is that category related to experimentalism. Three of the TPOR categories, 1, 3, and 6 appeared on other factors in the study suggesting less specificity of usage than those categories which appeared only on Factor 6. In fact, one category, 1. Nature of the Situation has a higher loading on Factor 5 than on the experimentalism factor.

FACTOR 7--CONCRETE COGNITION VS ABSTRACT

VARIABLE NUMBER		LOADING
26	Teacher Cognition 7. Evaluation	-.65
47	Non-Visual Concrete with Imagery	-.45
36	Experimentalism 1. Nature of Situation	-.31
51	Non-Visual Abstract with Imagery	.35

Factor 7 shows the relationship again between the highest level of teacher cognition, evaluation, and an experimental classroom situation.

Loading in the same direction as the above mentioned measures is measure 47, Non-visual Concrete With Imagery. Thus, we find that teachers in this case were providing concrete cognition within an experimental classroom situation. Loading in the opposite direction is measure 51, teachers providing abstract experiences to provoke non-visual imagery.

FACTOR 8--INITIATION VS DIRECTION AND SILENCE

VARIABLE NUMBER		LOADING
6	TEACHER INITIATION	.52
16	STUDENT INITIATION	.41
7	TEACHER DIRECTIONS	-.39
10	SILENCE AND/OR CONFUSION	-.85

Student and Teacher Initiation load in the same direction on this factor as they did on Factor 5. Loading in the opposite direction are Teacher Directions and Silence (or confusion). Previous studies have shown a close relationship between Teacher Directions and Silence. (silence normally follows directions) Teacher and Student Initiation do not always show such a close relationship (i.e. Factor 11). Rather simply, Factor 8 appears to indicate that Teacher and Student Initiation occur within the same context, but not together with Teacher Directions and Silence and/or Confusion.

FACTOR 9--TEACHER COGNITION

VARIABLE NUMBER		LOADING
20	TEACHER COGNITION 1. KNOWLEDGE	.82
22	TEACHER COGNITION 3. INTERPRETATION	.73
21	TEACHER COGNITION 2. TRANSLATION	.57
23	TEACHER COGNITION 4. APPLICATION	.54
28	STUDENT COGNITION 1. KNOWLEDGE	.54

On this factor, the first four levels of teacher cognition appear in close relationship to the first level of student cognition, Knowledge. This finding is consistent with a previous one (10) in which a close relationship appeared repeatedly between teacher and student cognition at the Knowledge level.

Teacher cognition is central on this factor and only the lowest student cognitive level, Knowledge, appears to be related. A contrasting set of relationships within the cognitive dimension was found on Factor 3 where student cognition was central, as it is on this factor, student cognition tends to remain at the Knowledge level.

FACTOR 10--CONCRETE VS ABSTRACT WITHOUT IMAGERY

VARIABLE NUMBER		LOADING
44	CONCRETE WITHOUT IMAGERY	.66
25	TEACHER COGNITION 6. SYNTHESIS	.44
45	ABSTRACT WITHOUT IMAGERY	-.32

Factor 10 shows a positive relationship between teacher cognition at the Synthesis level, and Concrete classroom experiences Without Imagery. Abstract teacher behavior Without Imagery loads negatively. Probably the most important finding from Factor 10 is that the aspect of concreteness rather than the aspect of imagery is more closely related to teacher synthesis.

FACTOR 11--STUDENT INITIATION AND COGNITION VS TEACHER INITIATION

VARIABLE NUMBER		LOADING
29	STUDENT COGNITION 2. TRANSLATION	.67
30	STUDENT COGNITION 3. INTERPRETATION	.59
28	STUDENT COGNITION 1. KNOWLEDGE	.51
16	STUDENT INITIATION	.38
53	GRADE LEVEL	-.47
6	TEACHER INITIATION	-.59

Factor 11 presents an interesting set of relationships. Measures 6 and 16, Teacher and Student Initiation, appear together for the third time, however, in this case, they load in opposite directions. As grade level increases, Teacher Initiation increases, but Student Initiation, and three levels of cognition, decrease. Thus Teacher Initiation, while related positively to Student Initiation in some dimensions of classroom behavior, has a negative relationship to Student Initiation as it appears within the cognitive dimension.

CONCLUSIONS

For the most part, findings of the present study were consistent with previous similar studies (Wood '69) even though an additional dimension of classroom behavior (imagery) was measured and the subjects were teacher trainees rather than inservice teacher:

When student cognitive behavior is central, the level of cognition tends to be high (Analysis, Synthesis, Evaluation) and related to similarly high levels of teacher cognition (Analysis, Synthesis) (Factor 3). When teacher cognition is central, student cognitive behavior is likely to remain fixed at the lowest cognitive level, Knowledge (Factor 9). Although the nature of the evidence supports that this conclusion be accepted tentatively, indications are clear that the role of students in the classroom, whether central or peripheral, is important to the cognitive as well as the affective dimension of classroom behavior.

Higher levels of teacher cognition (Analysis, Synthesis, Evaluation) are closely related to the Taxonomy of Image Provocation. It is interesting to note, however, that the highest levels of teacher cognition (Synthesis and Evaluation) vary more directly along the concrete-abstract continuum than with the provocation of imagery as such. Synthesis level cognition is positively related to Concrete Behavior Without Imagery, and negatively related to Abstract Without Imagery. Evaluation level cognition is related to Concrete Behavior With Imagery, negatively related to Abstract Behavior With Imagery. Thus, we may reach the conclusion that these highest levels of teachers cognition (Synthesis and Evaluation) are positively related to concrete classroom experiences, whether with or without imagery,

and negatively related to abstract classroom experiences whether with or without imagery. It is the aspect of concreteness, rather than that of imagery which appears to be congruent with high level teacher cognition. Evidence to support this conclusion may be found in Factor 7 and Factor 10.

Experimental teacher practices, as measured by the TPOR, show rather consistent relationships to teacher and student cognitive behavior. The Development of Ideas category of Experimentalism appears of Factor 3 along with student-teacher cognition. Such practices as "T asks P to suggest alternative answers," "T sks P to judge comparative value of answers or suggestions," "T entertains even wild or far-fetched suggestion of P," "T asks P to support answer or opinion with evidence," "T encourages P to guess or hypothesize about the unknown or untested," are related to student Synthesis (Creativity), Analysis, Evaluation and Application. Teacher cognition at the Analysis and Synthesis levels are also congruent with the above experimental practices.

The highest level of teacher cognition, Evaluation is closely related to an experimental "Nature of the Situation" by virtue of loading together on two separate factors. An experimental setting where "T makes P center of attention," "T has P participate actively," "T joins or participates in P's activities," "T encourages P to express self freely," and teacher Evaluation

level cognition are mutually facilitative. Evidence to support this conclusion may be found in Factors 5 and 7.

As teachers increase their use of climate warming behavior, as measured by the RCS, students increase their classroom participation and verbal flexibility. This conclusion, supported by Factor 2 in the present study, is similar to findings of several previous studies (i.e. Withall, Flanders, Anderson, Hough, Ober, Wood, et al).

Teachers consistently express a desire to increase student participation, to motivate students, to "reach" students. The cumulative weight of evidence suggests that student classroom participation is closely related to the nature of the socio-emotional climate, and, further, that the warmer the climate (or the more "indirect" the teacher behavior) the more likely students will participate actively. Students are not threatened in a warm climate and are less reluctant to express themselves freely and openly.

The erratic use of divergent categories of teacher verbal behavior is related to student climate cooling. This conclusion is reached only with greatest caution, since much of the support is rather subjective (Factor 4).

Teacher initiation (lecture) and student initiation are positively related to each other and to grade level, but negatively related to teacher questions, convergent student responses, and teacher evaluation level cognition. Or, more simply, as teacher and student initiation and grade level increase, the negatively related measures decrease. Supporting evidence for this conclusion is found in Factor 5.

Such a conclusion implies that classroom management approaches vary with grade level. At lower grade levels, a question-answer approach is prevalent but, as grade level increases so do teacher initiation (lecture) and student initiation. Further relationships involving student and teacher initiation were discussed on two additional factors. Factor 8 shows teacher and student initiation positively related to each other, but negatively related to teacher directions and silence. In Factor 11, student initiation is positively related to three levels of student cognition, while teacher initiation and grade level load oppositely. Findings in these related factors suggest that teacher and student initiation are mutually compatible in the affective dimension, but contra-productive when coupled with the cognitive dimension of classroom behavior.

The purpose of this study was set forth in a simple hypothesis, stated in the null, that there would be no interrelationships

among the four measured dimensions of classroom behavior. Such an hypothesis would have to be quickly rejected since several strong relationships were found within one or more of the four instruments as well as between pairs of instruments used in the study.

TABLE 1--VARIABLES

RCS

1. Teacher Warms Climate
2. Teacher Acceptance
3. Teacher Clarification, Extension of Student Ideas
4. Teacher Questions
5. Teacher Answers Questions
6. Teacher Initiation (lecture)
7. Teacher Directions
8. Teacher Corrects Students
9. Teacher Cools Climate
10. Silence and/or Confusion
11. Students Warm Climate
12. Student Acceptance
13. Students Clarify, Extend Ideas of Others
14. Student Questions
15. Student Answers Questions (Narrow Response)
16. Student Initiation (or Broad Response)
17. Student Directions
18. Student Corrects Teacher or Other Students
19. Students Cool Climate

FTCB

20. Teacher Cognition - Knowledge
21. Teacher Cognition - Translation
22. Teacher Cognition - Interpretation
23. Teacher Cognition - Application
24. Teacher Cognition - Analysis
25. Teacher Cognition - Synthesis
26. Teacher Cognition - Evaluation
27. Teacher Cognition - Median
28. Student Cognition - Knowledge
29. Student Cognition - Translation
30. Student Cognition - Interpretation
31. Student Cognition - Application
32. Student Cognition - Analysis
33. Student Cognition - Synthesis
34. Student Cognition - Evaluation
35. Student Cognition - Median

TPOR

36. Nature of Situation
37. Nature of Problem
38. Development of Ideas
39. Use of Subject Matter
40. Evaluation
41. Differentiation
42. Motivation - Control
43. Total Experimental Score

TIP

44. Concrete Without Imagery
45. Abstract Without Imagery
46. Visual Concrete
47. Non-Visual Concrete
48. Visual Representation
49. Non-Visual Representation
50. Visual Abstract
51. Non-Visual Abstract
52. Total Imagery
53. Grade Level

FIGURE 1--SUMMARY OF CATEGORIES FOR
THE RECIPROCAL CATEGORY SYSTEM

CATEGORY DESCRIPTIONS
FOR THE
RECIPROCAL CATEGORY SYSTEM

Category Number Assigned to Party 1*	Description of Verbal Behavior	Category Number Assigned to Party 2**
1	"WARMS" (INFORMALIZES) THE CLIMATE: Tends to open up and/or eliminate the tension of the situation; praises or encourages the action, behavior, comments, ideas, and/or contributions of another; jokes that release tension not at the expense of others; accepts and clarifies the feeling tone of another in a friendly manner (feelings may be positive or negative; predicting or recalling the feelings of another are included).	11
2	ACCEPTS: Accepts the action, behavior, comments, ideas, and/or contributions of another; positive reinforcement of these.	12
3	AMPLIFIES THE CONTRIBUTIONS OF ANOTHER: Asks for clarification of, builds on, and/or develops the action, behavior, comments, ideas and/or contributions of another.	13
4	ELICITS: Asks a question or requests information about the content subject, or procedure being considered with the intent that another should answer (respond).	14
5	RESPONDS: Gives direct answer or response to questions or requests for information that are initiated by another; includes answers to ones own questions.	15
6	INITIATES: Presents facts, information, and/or opinion concerning the content, subject, or procedures being considered that are self-initiated; expresses ones own ideas; lectures (includes rhetorical questions--not intended to be answered).	16
7	DIRECTS: Gives directions, instructions, orders, and/or assignments to which another is expected to comply.	17
8	CORRECTS: Tells another that his answer or behavior is inappropriate or incorrect.	18
9	"COOLS" (FORMALIZES) THE CLIMATE: Makes statements intended to modify the behavior of another from an inappropriate to an appropriate pattern; may tend to create a certain amount of tension (i.e., bawling out someone, exercising authority in order to gain or maintain control of the situation, rejecting or criticizing the opinion or judgment of another).	19
10	SILENCE OR CONFUSION: Pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.	20

*Category numbers assigned to Teacher Talk when used in classroom situation.
**Category numbers assigned to Student Talk when used in classroom situation.

FIGURE 2--THE FLORIDA TAXONOMY OF COGNITIVE BEHAVIOR

FLORIDA TAXONOMY OF COGNITIVE BEHAVIOR

Directions

The Florida Taxonomy of Cognitive Behavior provides a framework for observing and recording the cognitive behavior of the teacher and students in a classroom. Your role as an observer is to watch and listen for signs of the behavior described and to record the behavior as it occurs.

There are five (5) separate 6-minute observation and marking periods in each 30-minute visit to the classroom. These are indicated by the column headings I, II, III, IV, and V. During period I, as you observe the behavior of the teacher and students, go down the list of items and place a check (✓) in the T column (teacher behavior) and/or P column (pupil behavior) beside all items you saw occur. Leave blank all the items that did not occur or for which you cannot make a discrimination. A particular item is marked only once in a given column, no matter how many times that behavior occurs within the 6-minute observation period.

Repeat this process for the second 6-minute period, marking in Column II. Repeat again for the third, fourth, and fifth 6-minute periods, marking in Columns III, IV, and V. Please add the total number of (✓) recorded in Columns I through V for each teacher or pupil behavior and record in the columns headed TOT. There may be from 0 to 5 ✓'s for each item.

_____
Name of Teacher

_____
Date

_____
School

_____
Name of Observer

_____
Grade & Subject

FLORIDA TAXONOMY OF COGNITIVE BEHAVIOR

TOT T	TOT P	T/ P	T/ P	T/ P	T/ P	T/ P	
							1.10 KNOWLEDGE OF SPECIFICS
							1. Reads
							2. Spells
							3. Identifies something by name
							4. Defines meaning of term
							5. Gives a specific fact
							6. Tells about an event
							1.20 KNOWLEDGE OF WAYS AND MEANS OF DEALING WITH SPECIFICS
							7. Recognizes symbol
							8. Cites rule
							9. Gives chronological sequence
							10. Gives steps of process, describes method
							11. Cites trend
							12. Names classification system or standard
							13. Names what fits given system or standard
							1.30 KNOWLEDGE OF UNIVERSALS AND ABSTRACTIONS
							14. States generalized concept or idea
							15. States a principle, law, theory
							16. Tells about orgnztn or structure
							17. Recalls name of prin, law, theory
							2.00 TRANSLATION
							18. Restates in own words or briefer terms
							19. Gives cncrt exmpl of an abstract idea
							20. Verbalizes from a graphic rprsntatn
							21. Trans vrbiztn into graphic form
							22. Trans fig stmnts to lit stmnts, or vice v
							23. Trans for lang to Eng, or vice versa

FLORIDA TAXONOMY OF COGNITIVE BEHAVIOR

TOT T	TOT P	T/ P	T/ P	T/ P	T/ P	T/ P	
							3.00 INTERPRETATION
							24. Gives reason (tells why)
							25. Shows similarities, diffrncs
							26. Summarizes or concludes frm obs of evdnce
							27. Shows cause and effect rltnshp
							28. Gives analogy, simile, metaphor
							29. Performs a directed task or process
							4.00 APPLICATION
							30. Applies previous learning to new sitn
							31. Applies principle to new situation
							32. Apply abstrct knldg in a prctcl sitn
							33. Idntifs, selects, and carries out process
							5.00 ANALYSIS
							34. Distngshs fact from opinion
							35. Distngshs fact from hypothesis
							36. Distngshs cnclsn frm stmnts wch suppt it
							37. Points out unstated assumption
							38. Shows interaction or relation of elements
							39. Points out prticlrs to jstfy cnclsn
							40. Checks hypthss with given info
							41. Dstngshs rel frm irrelvnt stmnts
							42. Detects error in thinking
							43. Infers prpse, pt of view, thghts, feelings
							44. Recog bias or propaganda
							6.00 SYNTHESIS (Creativity)
							45. Reorganizes ideas, materials, process
							46. Produces unique cmmnctn, divergent idea
							47. Produces a plan, prpsd set of oprtns
							48. Designs an apparatus
							49. Designs a structure
							50. Devises scheme for classifying info
							51. Formulates hypothesis, intelligent guess
							52. Mks dedctns frm abstrct smbls, propostns
							53. Draws inductive generalizatn frm specifcs
							7.00 EVALUATION
							54. Evaluates something from evdnce
							55. Evaluated something from criteria

FIGURE 3--THE TEACHER PRACTICES OBSERVATION RECORD

TEACHER COMPETENCE RESEARCH PROJECT

UNIVERSITY OF FLORIDA
COLLEGE OF EDUCATION
GAINESVILLE, FLORIDA 32603

TEACHER'S CLASSROOM BEHAVIOR

Name of Teacher_____

School_____

Grade_____ Subject_____

Date_____
(MONTH) (DAY) (YEAR)

_____
(CITY) (STATE)

Name of Observer-judge_____

The teacher's classroom behavior is observed, evaluated, and recorded in this booklet, which contains:

I. TEACHER PRACTICES OBSERVATION RECORD
II. CLASSROOM BEHAVIOR RATING SCALE
III. OBSERVER-JUDGE'S COMMENTS
IV. TEACHER EVALUATION
V. RECOMMENDATION FOR CERTIFICATION

The observer-judge should complete I during his observation of the teacher in the classroom, II, III, IV, and V at the end or immediately following the observation.

TEACHER PRACTICES OBSERVATION RECORD

TOT	I	II	III	TEACHER PRACTICES
				1. T makes self center of attention.
				2. T makes p center of attention.
				3. T makes some thing itself center of p's attention.
				4. T makes doing something center of p's attention.
				5. T has p spend time waiting, watching, listening.
				6. T has p participate actively.
				7. T remains aloof or detached from p's activities.
				8. T joins or participates in p's activities.
				9. T discourages or prevents p from expressing self freely.
				10. T encourages p to express self freely.
				11. T organizes learning around Q posed by T.
				12. T organizes learning around p's own problem or Q.
				13. T prevents situation which causes p doubt or perplexity.
				14. T involves p in uncertain or incomplete situation.
				15. T steers p away from "hard" Q or problem.
				16. T leads p to Q or problem which "stumps" him.
				17. T emphasizes gentle or pretty aspects of topic.
				18. T emphasizes distressing or ugly aspects of topic.
				19. T asks Q that p can answer only if he studied the lesson.
				20. T asks Q that is not readily answerable by study of lesson.
				21. T accepts only one answer as being correct.
				22. T asks p to suggest additional or alternative answers.
				23. T expects p to come up with answer T has in mind.
				24. T asks p to judge comparative value of answers or suggestions.
				25. T expects p to "know" rather than to guess answer to Q.
				26. T encourages p to guess or hypothesize about the unknown or untested.
				27. T accepts only answers or suggestions closely related to topic.
				28. T entertains even "wild" or far-fetched suggestion of p.
				29. T lets p "get by" with opinionated or stereotyped answer.
				30. T asks p to support answer or opinion with evidence.

TOT	I	II	III	TEACHER PRACTICES
				31. T collects and analyzes subject matter for p.
				32. T has p make his own collection and analysis of subject matter.
				33. T provides p with detailed facts and information.
				34. T has p find detailed facts and information on his own.
				35. T relies heavily on textbook as source of information.
				36. T makes a wide range of informative material available.
				37. T accepts and uses inaccurate information.
				38. T helps p discover and correct factual errors and inaccuracies.
				39. T permits formation of misconceptions and over-generalizations.
				40. T questions misconceptions, faulty logic, unwarranted conclusions.
				41. T passes judgment on p's behavior or work.
				42. T withholds judgment on p's behavior or work.
				43. T stops p from going ahead with plan which T knows will fail.
				44. T encourages p to put his ideas to a test.
				45. T immediately reinforces p's answer as "right" or "wrong".
				46. T has p decide when Q has been answered satisfactorily.
				47. T asks another p to give answer if one p fails to answer quickly.
				48. T asks p to evaluate his own work.
				49. T provides answer to p who seems confused or puzzled.
				50. T gives p time to sit and think, mull things over.
				51. T has all p working at same task at same time.
				52. T has different p working at different tasks.
				53. T holds all p responsible for certain material to be learned.
				54. T has p work independently on what concerns p.
				55. T evaluates work of all p by a set standard.
				56. T evaluates work of different p by different standards.
				57. T motivates p with privileges, prizes, grades.
				58. T motivates p with intrinsic value of ideas or activity.
				59. T approaches subject matter in direct, business-like way.
				60. T approaches subject matter in indirect, informal way.
				61. T imposes external disciplinary control on p.
				62. T encourages self-discipline on part of p.

II. CLASSROOM BEHAVIOR RATING SCALE

DIRECTIONS

At the end of the thirty-minute observation period the Classroom Behavior Rating Scale is to be used to record your overall impressions of both the teacher's behavior and the behavior of the pupils. The scale includes thirteen dimensions of teacher behavior and four dimensions of pupil behavior, which are represented by pairs of adjectives, such as ALOOF--APPROACHABLE, UNRESPONSIVE--RESPONSIVE, HARSH--KINDLY, and so forth. These behavior dimensions are described in detail in the Glossary on pages 6-10 in this booklet.

To complete the Classroom Behavior Rating Scale you begin by studying the descriptive examples of the ALOOF--APPROACHABLE dimension of teacher behavior in the Glossary. Decide at which point on the continuum of behavior ranging from one to six you would rate the teacher. Circle the appropriate value on the rating scale. Proceed to the dimension UNRESPONSIVE--RESPONSIVE, study the glossary and rate the teacher. Continue in a similar manner until values on all dimensions of teacher behavior and pupil behavior have been assigned.

TAXONOMY OF IMAGE PROVOCATION PROFILE

Gerard Solomon

Directions

The Taxonomy of Image Provocation Profile provides a means of observing and recording the image provoking behavior of the teacher in the classroom. Your role as an observer is to watch and listen for signs of the behavior described, and to record whether or not it was observed.

There are twelve (12) separate 2-minute observation periods in each 24 minute visit to the classroom. During each of the two minute observation periods place a check mark in an appropriate imagery level category as the behavior is exhibited. Only if no imagery is provoked during the 2- minute period should the PROVOKES NO IMAGERY section be marked. At the end of the 12th marking period add up the totals for each classification and record these in the first column, headed TOT.

_____ _____

Name of Teacher Date

_____

School

_____

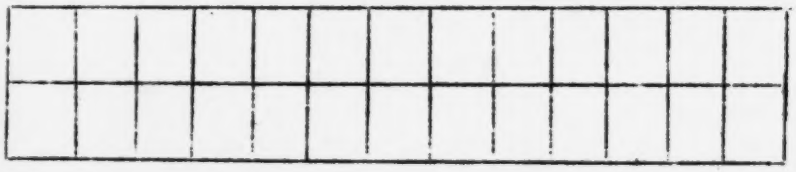
Name of Observer

_____

Subject and Grade

TAXONOMY OF IMAGE PROVOCATION PROFILE

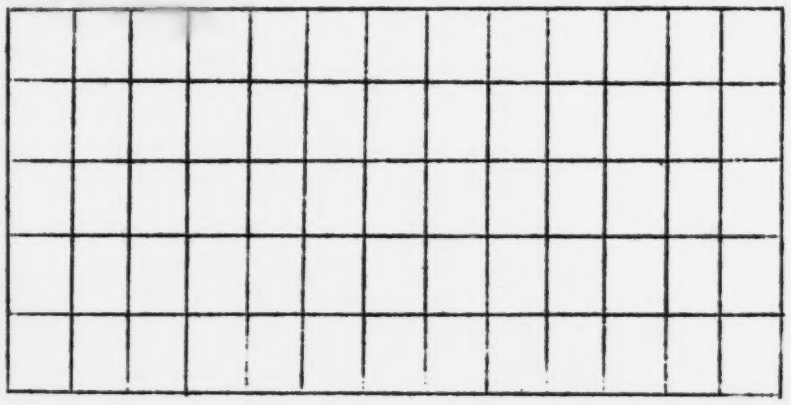
TOT PROVOKES NO IMAGERY



.0 USES CONCRETE WITHOUT IMAGEY

.00 USES ABSTRACT WITHOUT IMAGERY

TOT 1.00 USES CONCRETE TO PROVOKE IMAGERY



1.10 PROVOKES VISUAL IMAGE

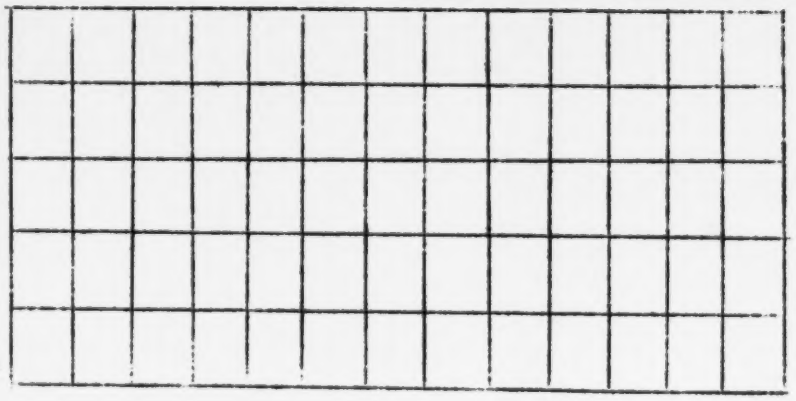
1.20 PROVOKES AUDITORY IMAGE

1.30 PROVOKES ORG, KIN, OR TACT IMAGE

1.40 PROVOKES OLFACTORY IMAGE

1.50 PROVOKES GUSTATORY IMAGE

TOT 2.00 USES REPRESENTATION TO PROVOKE IMAGERY



2.10 PROVOKES VISUAL IMAGE

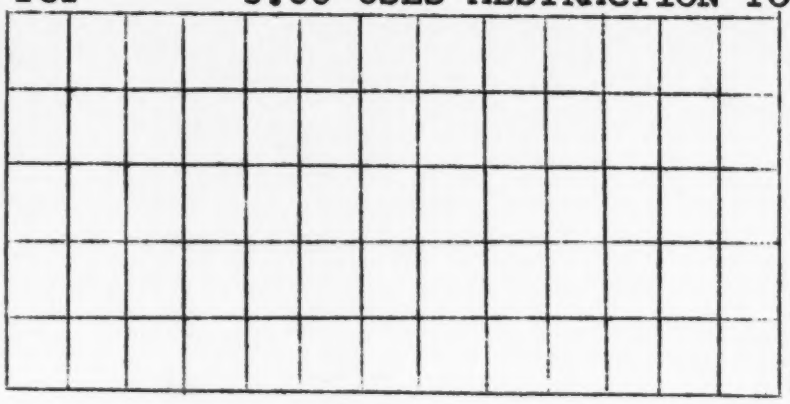
2.20 PROVOKES AUDITORY IMAGE

2.30 PROVOKES ORG, KIN, OR TACT IMAGE

2.40 PROVOKES OLFACTORY IMAGE

2.50 PROVOKES GUSTATORY IMAGE

TOT 3.00 USES ABSTRACTION TO PROVOKE IMAGEY



3.10 PROVOKES VISUAL IMAGE

3.20 PROVOKES AUDITORY IMAGE

3.30 PROVOKES ORG, KIN, OR TACT IMAGE

3.40 PROVOKES OLFACTORY IMAGE

3.50 PROVOKES GUSTATORY IMAGE

NAME_____ DATE _____ OBSERVER _____

TIP PROFILE

	CONCRETE	CONCRETE IMAGERY					REPRESENT-ATIONAL					ABSTRACT IMAGERY					ABSTRACT
		V	A	S	O	G	V	A	S	O	G	V	A	S	O	G	
TOTAL																	
12																	
11																	
10																	
9																	
8																	
7																	
6																	
5																	
4																	
3																	
2																	
1																	
0																	

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